REMARKS

This is in full and timely response to the Office Action mailed October 6, 2003 (Paper No. 20). Entry of this Amendment is proper under 37 C.F.R. §1.116 since the amendment: (a) places the application in condition for allowance (for the reasons discussed herein); (b) does not raise any new issues requiring further search and/or consideration; (c) satisfies a requirement of form asserted in the previous Office Action; and (d) places the application in better form for appeal, should an appeal be necessary. The amendment is necessary and was not earlier presented because it is made in response to the Examiner Interview conducted December 1, 2003. Entry of this amendment is respectfully requested. Reexamination and reconsideration in light of the above amendments and the following remarks is respectfully requested.

Claim 8 was amended to recite that the compressed layer is formed by compressing the conductive fine particles and the resin on the support with a compression force of at least $44N/mm^2$. Support for this Amendment can be found variously throughout the specification, for example, at page 11, lines 6-8. No new matter was added.

Claims 2-8 are pending in this application, with claims 2-3 and 8 pending for the Examiner's reconsideration, with claims 4 and 8 being independent. Reexamination and reconsideration in light of the above amendments and the following remarks is respectfully requested.

Applicant notes that the examiner was not fully responsive to the challenge of Official Notice, and accordingly, respectfully request that finality of the final Office Action (Paper No. 20) be withdrawn, and this Amendment be entered. Specifically, the examiner inserts a new Belgium reference "as evidence supporting the element taken in official notice." Paragraph 5 of the Office Action. However, the statement of rejection does not include this reference, and the proposition for which the reference is used is challenged.

Applicant's Representative thanks the examiner for the courtesies extended during the December 1, 2003 telephone interview.

Interview Summary

During the December 1, 2003 interview, the elements of the pending claims and the applied references were discussed, in particular the difference between the claimed resin and the soot of the references. The amount of compression of the particles was also discussed. No agreement was reached. Applicant's Representative affirms the Intervie w Summary Record of December 1, 2003 (Paper No. 21).

Rejections under 35 U.S.C. §103

Claims 2-3 and 8 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,411,792 to Yukinobu et al. Applicant respectfully traverses this rejection.

Applicant notes that the examiner continues to parse the claims, stating that the limitation "formed by compressing the conductive fine particles and the resin on the support" is a process limitation, and does not further limit the structure of the product. Applicant disagrees. Still further, the examiner alleges that all of the limitations of claim 2 are product by process limitations and do not further limit the independent claim. Applicant disagrees.

Claim 8 recites a transparent conductive film comprising: a compressed layer on a support, said compressed layer having conductive fine particles and a resin, said resin being approximately 0.03-9.3 parts by volume with respect to 100 parts by volume of said conductive fine particles, said compressed layer formed by compressing the conductive fine particles and the resin on the support with a compression force of at least $44N/mm^2$, wherein said compressed layer further comprises an impregnated transparent substance.

As discussed during the December 1, 2003 Interview, the use and amount of compression pressure is not disclosed, taught or suggested in the applied reference. Accordingly, withdrawal of this rejection is respectfully requested.

As discussed in the previous response, regarding Yukinobu et al. '792, the examiner alleges that all the claim elements are taught. See the Office Action (Paper No. 17) at paragraph 10. The examiner acknowledges, however, that the reference does not teach 0.03-9.3 parts by volume of the resin binder with respect to 100 parts by volume of the conductive particles. The

examiner opines in paragraph 12 of the Office Action that the reference teaches that if the amount of resin binder present in the film is "too much," the film will not exhibit good resistivity, "whereas if too little resin is utilized, the film is excessively porous and becomes hazy." The examiner concludes that "it would have been obvious ... to control the amount of binder resin in the film of Yukinobu in order to obtain a transparent conductive film that exhibited the desired resistance and haze properties." However, the examiner refers only to the background portion of Yukinobu et al. '792. Yukinobu et al. '792 do not disclose, teach or suggest the ranges claimed, and as this is a discussion of the shortcomings of the prior art, this can be considered no more than an invitation to experiment. The examiner then states that it "is the examiner's position that after the heat treatment step" of Yukinobu et al. '792 in examples 15-18, "a small residual amount of resin binder will remain." This is a conclusion reached by the examiner without support from the applied reference, and as such is clearly a situation of the examiner taking official notice.

Yukinobu et al. '792 discloses that "This film was thermally treated in a nitrogen atmosphere at 400°C for 10 minutes for forming a coating layer by *carbonizing* the acrylic resin," (column 13, lines 29-31) and "a transparent conductive film was formed by heating the transparent conductive layer *in air at 400°* for 30 minutes and then in a nitrogen atmosphere at 400° for 25 minutes." See column 13, lines 37-40. The examiner's statements above do not correlate with this description.

Accordingly, the acrylic resin was *carbonized* by heating to 400° in a nitrogen atmosphere, resulting in soot remaining, i.e. carbon which can no longer function as a binder resin. Furthermore, the soot is gasified as carbon dioxide by *heating to 400° in air*, resulting in transparency. Even if some residue is still on the film after the above heating process, the residue no longer functions as a binder resin.

Several basic factual inquires must be made in order to determine obviousness or non-obviousness of the claims of a patent application under 35 U.S.C. § 103. These factual inquiries are set forth Graham v. John Deere Co., 383 U.S. 1,17,148 USPQ 459,467 (1966):

> Under § 103, the scope and content of the prior art to be determined; the differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or non-obviousness of the subject matter is determined.

The specific factual inquiries set forth in Graham have not been considered or properly applied by the Examiner in formulating the rejections of the subject claims. Particularly, the scope and content of the prior art and the level of ordinary skill in the pertinent art were not properly determine and demonstrated and applied to the claimed invention.

In this application, proper consideration of factual inquiries demonstrates non-obviousness of the claimed invention. Yukinobu et al. '792 does not disclose, teach or suggest that the resin is approximately 0.03-9.3 parts by volume with respect to 100 parts by volume of the conductive fine particles.

It is clear that one of ordinary skill in the art would not have looked at a teaching of Yukinobu et al. '792 for the resin/conductive fine particles quantitative relationship, other than as an invitation to experiment.

As acknowledged in the Office Action, Yukinobu et al. '792 do not teach 0.03-9.3 parts by volume of the resin binder with respect to 100 parts by volume of the conductive particles. The examiner opines in paragraph 12 of the Office Action that the reference teaches that if the amount of resin binder present in the film is "too much," the film will not exhibit good resistivity, "whereas if too little resin is utilized, the film is excessively porous and becomes hazy." The examiner concludes that "it would have been obvious ... to control the amount of binder resin in the film of Yukinobu in order to obtain a transparent conductive film that exhibited the desired resistance and haze properties." However, the examiner refers only to the background portion of Yukinobu et al. '792. Yukinobu et al. '792 do not disclose, teach or suggest the ranges claimed, and as this is a discussion of the shortcomings of the prior art, this can be considered no more than an invitation to experiment. The examiner then states that it "is the examiner's position that after the heat treatment step" of Yukinobu et al. '792 in examples 15-18, "a small residual amount of resin binder will remain." This is a conclusion reached by the

examiner without support from the applied reference, and as such is clearly a situation of the examiner taking official notice.

As discussed above, Yukinobu et al. '792 discloses that "This film was thermally treated in a nitrogen atmosphere at 400°C for 10 minutes for forming a coating layer by *carbonizing* the acrylic resin," (column 13, lines 29-31) and "a transparent conductive film was formed by heating the transparent conductive layer *in air at 400°* for 30 minutes and then in a nitrogen atmosphere at 400° for 25 minutes." See column 13, lines 37-40. The examiner's statements above do not correlate with this description.

Accordingly, the acrylic resin was *carbonized* by heating to 400° in a nitrogen atmosphere, resulting in soot remaining, i.e. carbon which can no longer function as a binder resin. Furthermore, the soot is gasified as carbon dioxide by *heating to 400° in air*, resulting in transparency. Even if some residue is still on the film after the above heating process, the residue no longer functions as a binder resin.

Furthermore, the Office Action does not suggest any motivation to determine the amount of resin actually present in any step of Yukinobu et al. '792.

Accordingly, a prima facie case of obvious has not been established. For at least the reasons above, claim 8 is therefore patentable, and withdrawal of the §103(a) rejection is therefore respectfully solicited.

Claims 2-3, being dependent upon claim 8, are also allowable for the reasons above. Moreover, these claims are further distinguished by the materials recited therein, particularly within the claimed combination. Withdrawal of the §103(a) rejection is therefore respectfully solicited.

Still further, the Office Action acknowledges that Yukinobu et al. '792 do not explicitly teach the quantity of resin, and as a result, in order for the examiner to conclude these values, the examiner must take Official Notice. Applicant respectfully traverses these rejections for the reasons stated above, as well as the reasons stated below.

Applicant, by this Request for Reconsideration, hereby requests that the Examiner either:

1. provides an affidavit attesting to all the elements taken as Official Notice; or

2. provides another non-final Office Action withdrawing Official Notice and, if the Examiner wishes to maintain this rejection, provide suitable references for the asserted rejection.

Since the Examiner's Official Notice is hereby challenged, under M.P.E.P. § 2144.03, 37 C.F.R. 1.104, this is a full and complete response to the pending rejection. Withdrawal of this rejection is respectfully requested.

In response to this challenge to Official Notice, the examiner cites Belgium Patent No. BE 09700962 and its U.S. counterpart. The office action alleges that the references "clearly teaches that when calcining a resin material, the duration of the calcining step must be sufficient to remove "most of the organic residue originating from the binder (see section 31). Thus, the examiners assertion that "some" binder will remain after calcinations is a fact that is clearly taught in the prior art...." See Office Action at Paragraph 5. Applicant disagrees. Paragraph [0031] of the U.S. counterpart states "... to remove most of the organic residues originating from the binder and/or the plasticizer." The residues are not defined as binder, rather, what is left of the binder after it has been calcined. Organic residue has previously been defined as "soot," and accordingly, cannot be the resin. The opinion of the examiner that some binder will remain continues to be a conclusion without basis, and the reference does not support this conclusion. Still further, the examiner has not shown in the reference the amount of resin, if any, that remains after calcining, and this reference, if applied, does not make up for the deficiencies of the applied reference.

Accordingly, the challenge to the Official Notice is maintained. Withdrawal of the finality of this Office Action is requested.

Still further, as acknowledged in the Office Action, a heat treatment step is used in Yukinobu et al. '792. As discussed in the previous Amendment regarding the method of Kawata et al. '962, this is a baking process. This baking process is operated at about 400°C or higher (column 5, lines 21, column 6, lines 62-64, and elsewhere) in air and then in an inert gas atmosphere.

In contrast, the present invention comprises a compressing process for obtaining conductive property. In the compressing process, the compression increases the number of contact points among the conductive fine particles to increase the contact area and the electric resistance is reduced. See page 22, line 25 to page 23, line 3. Accordingly, the electric resistance is reduced without calcining at a high temperature. See page 9, lines 7-8. The present specification clearly recites the unfavorable influence of the calcining process at page 4, lines 17-21, whereby "since a calcining step at a temperature higher than 300°C must be carried out, it is difficult to form a conductive film on a support such as a resin film. In other words, the resin film will be melted, carbonized, or burnt by the high temperature."

Not calcining at a high temperature permits the support to be "various ones such as resin film, glass, ceramics and others." See page 19, lines 7-8. Furthermore, the use of resin film results in weight reduction (page 19, line 17) and good close adhesion of the conductive fine particle layer to the film. See page 19, lines 15-16. The peel test result in the Example to evaluate the close adhesion of the conductive layer to the support film and the strength of the conductive layer reflects this remarkable effect. Additionally, the use of the resin film brings excellent flexibility of the transparent conductive film.

Accordingly, for all the reasons discussed above, it would not be obvious to make the transparent conductive film of claim 8 from Yukinobu et al. '792. Withdrawal of this rejection is respectfully requested.

Dependent claims 2-3 depend from claim 8, are also allowable for the reasons above. Moreover, these claims are further distinguished by the materials recited therein, particularly within the claimed combination. Withdrawal of the §103(a) rejection is therefore respectfully solicited.

Conclusion

For the foregoing reasons, claims 2-3 and 8 are allowable, and the present application is in condition for allowance. Accordingly, favorable reexamination and reconsideration of the application in light of these amendments and remarks is courteously solicited. If the examiner has any comments or suggestions that would place this application in even better form, the Examiner is requested to telephone the undersigned attorney at the number below.

Dated: December 8, 2003

Respectfully submitted,

By 

David T. Nikaido
Registration No.: 22,663
Robert S. Green
Registration No.: 41,800
RADER, FISHMAN & GRAUER PLLC
The Lion Building
1233 20th Street, N.W., Suite 501
Washington, DC 20036
(202) 955-3750
Attorneys for Applicant

Should additional fees be necessary in connection with the filing of this paper, or if a petition for extension of time is required for timely acceptance of same, the Commissioner is hereby authorized to charge Deposit Account No. 180013 for any such fees; and applicant(s) hereby petition for any needed extension of time.

DC141664